

Dr. Duke's Phytochemical and Ethnobotanical Database

Chemicals Found in *Beta vulgaris*

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	2"-O-ALPHA-L-RHAMNOSYLISOVITEXIN	Leaf	--	30		
0	2"-O-BETA-D-XYLOSYLISOVITEXIN	Leaf	--	200		
0	3-HYDROXYTYRAMINE	Root	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	3-O-(BETA-D-GLUCOPYRAMOSYL-(1-6)-BETA-D-GLUCOPYRANOSYL)-ISORHAMNETIN	Leaf	--	60		
0	ACETAMIDE	Root	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
1	ACONITIC-ACID	Plant	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
11	ADENINE	Root	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
3	ADIPIC-ACID	Root	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
3	ALANINE	Root	560	4338	0.4412042274099843	USDA's Ag Handbook 8 and sequelae)
12	ALLANTOIN	Root	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
15	ALPHA-LINOLENIC-ACID	Root	40	315	-0.6222019681781472	USDA's Ag Handbook 8 and sequelae)

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
15	ALPHA-LINOLENIC-ACID	Leaf	316	3160	-0.7100367130624211	
0	ALPHA-SPINASTERYLGLUCOSIDE	Root	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
32	ALPHA-TOCOPHEROL	Leaf	321	439	0.35927304562664447	Jim Duke's personal files.*
32	ALPHA-TOCOPHEROL	Root	0.5	3.6	-1.1769646985527407	
5	ALUMINUM	Root	1	420	-0.08712633399832509	
14	ARGININE	Root	380	2997	-0.3886990633481032	USDA's Ag Handbook 8 and sequelae)
2	ARSENIC	Root	0.01	0.08	-0.20408211266611795	ACTA AGRIC SCAND SUPPL 22: 1980
112	ASCORBIC-ACID	Root	50	868	-0.14978616745086681	
112	ASCORBIC-ACID	Leaf	120	3696	-0.10097839366506348	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	ASH	Leaf	15000	250000	2.3106721759278104	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
0	ASH	Root	7600	140000	2.0685940802719145	
3	ASPARTIC-ACID	Root	1060	8360	-0.20719379324946055	USDA's Ag Handbook 8 and sequelae)
0	BARIUM	Root	17	70	-1	
53	BETA-CAROTENE	Root	--	438	2.3642545272136704	
0	BETA-INDOLEACETIC-ACID	Root	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
47	BETA-SITOSTEROL	Leaf	--	130	-1.0063608461922844	
47	BETA-SITOSTEROL	Root	--	--		Spiller, G. A. 1996 (Spiller, G. A. Ed. 1996. CRC Handbook of Lipids in Human Nutrition. CRC Press. Boca Raton, FL. 233 pp.)

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
3	BETAGARIN	Plant	--	--		Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
14	BETAINE	Root	700	3000		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
1	BETALAMIC-ACID	Plant	--	--		Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	BETANIDINE	Root	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
5	BETANIN	Root	--	--		Stuppner, H., Egger, R. 1996. Application of Capillary Zone Electrophoresis to the Analysis of Betalains from Beta vulgaris. J. Chromatogr, 735: 409-413.
5	BETANIN	Plant	--	--		J.S. Glasby Dict.Pls Containing 2ndary Metabolite. 1991.
0	BETANINE	Root	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
2	BETAVULGARIN	Leaf	--	--		

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
4	BORON	Root	1	80	2.0686336024652223	
0	BROMINE	Root	2	16	0.9139256619697997	ACTA AGRIC SCAND SUPPL 22: 1980
3	CADMIUM	Root	0.01	0.33	-0.5322309593207406	ACTA AGRIC SCAND SUPPL 22: 1980
102	CAFFEIC-ACID	Leaf	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
28	CALCIUM	Leaf	700	17368	-0.0730545959775421	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
28	CALCIUM	Root	120	4200	-0.35076486765280085	
2	CAMPESTEROL	Leaf	--	--		Spiller, G. A. 1996 (Spiller, G. A. Ed. 1996. CRC Handbook of Lipids in Human Nutrition. CRC Press. Boca Raton, FL. 233 pp.)

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	CARBOHYDRATES	Leaf	36000	609000	-0.022662302144463308	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
0	CARBOHYDRATES	Root	95000	794000	-0.4625269106364368	
77	CHLOROGENIC-ACID	Leaf	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
24	CHROMIUM	Root	0.001	0.33	-0.49416528207760696	ACTA AGRIC SCAND SUPPL 22: 1980
23	CITRIC-ACID	Root	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
2	COBALT	Root	0.001	0.42	-0.5360925141125041	ACTA AGRIC SCAND SUPPL 22: 1980
2	CONIFERIN	Seed	--	--		

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
2	CONIFERIN	Plant	--	--		
2	CONIFERIN	Root	--	--		
12	COPPER	Root	0.6	17	0.5844884448285068	
2	CYSTINE	Root	180	1420	1.181476498312086	USDA's Ag Handbook 8 and sequelae)
0	D-ALPHA-OXYGLUTARIC-ACID	Root	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	D-RIBULOSE	Leaf	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	DAUCIC-ACID	Plant	--	--		Chemical Constituents of Oriental Herbs (3 diff. books)

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	DIHYDROCAFFEIC-ACID	Plant	--	--		Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
0	DIOXYMALONIC-ACID	Root	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
17	FARNESOL	Root Essent. Oil	--	--		
17	FARNESOL	Essential Oil	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	FAT	Leaf	2000	58000	0.03064519993255828	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
0	FAT	Root	1000	16000	-0.2294322736898297	
0	FAT	Seed	28000	70000	-1.0291763330491175	List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
61	FERULIC-ACID	Leaf	--	--		
15	FIBER	Leaf	4000	279000	1.452590411305937	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
15	FIBER	Root	8000	90000	0.04193139754777649	
15	FOLACIN	Root	0.8	8	1.879478715404913	USDA's Ag Handbook 8 and sequelae)

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
12	FORMALDEHYDE	Root	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
22	GABA	Root	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
1	GALACTOSE	Plant	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
1	GALACTOSE	Root	--	--		

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
7	GLUCOSE	Root	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
8	GLUTAMIC-ACID	Root	3930	10500	1.3370135300475792	USDA's Ag Handbook 8 and sequelae)
0	GLUTARIC-ACID	Root	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
12	GLYCINE	Root	290	2287	-0.3761711380939947	USDA's Ag Handbook 8 and sequelae)
0	GLYCOCEREBROSIDES	Root	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	GLYOXALIC-ACID	Sprout Seedling	--	--		USDA's Ag Handbook 8 and sequelae)
1	GLYOXYLIC-ACID	Root	--	--		Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
1	GUANINE	Root	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	GUANOSINE	Root	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	HETEROXANTHIN	Root	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	HEXOSANS	Root	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
7	HISTIDINE	Root	200	1577	-0.20948317136853128	USDA's Ag Handbook 8 and sequelae)
0	HOMOGENTISINIC-ACID	Root	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	HYDANTOIN	Sprout Seedling	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	HYDROCAFFEIC-ACID	Root	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	HYPOXANTHIN	Root	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	HYPOXANTHOSINE	Plant	--	--		Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
8	INOSINE	Plant	--	--		Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
0	INVERTASE	Root	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
6	IRON	Root	5	165	-0.20194277471449604	

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
6	IRON	Leaf	7	392	0.07303896870284142	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
1	ISOBETANIN	Root	--	--		Stuppner, H., Egger, R. 1996. Application of Capillary Zone Electrophoresis to the Analysis of Betalains from Beta vulgaris. J. Chromatogr, 735: 409-413.
3	ISOLEUCINE	Root	440	3470	0.00013896281933737457	USDA's Ag Handbook 8 and sequelae)
75	KAEMPFEROL	Plant	--	--		
0	KAEMPFEROL-GLYCOSIDE	Leaf	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	KILOCALORIES	Root	430	3610	0.5362060653597072	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
0	KILOCALORIES	Leaf	210	3310	0.47054597631831413	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
0	L-ARABINOSE	Root	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
1	L-AZETIDINE-2-CARBOXYLIC-ACID	Root	--	--		Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
0	LEAD	Root	0.01	3.5	0.19221513782960292	

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
2	LEUCINE	Root	630	4968	0.3558822256981897	USDA's Ag Handbook 8 and sequelae)
27	LINOLEIC-ACID	Root	460	3628	0.18872562307250482	USDA's Ag Handbook 8 and sequelae)
11	LITHIUM	Root	0.36	0.6		
4	LYSINE	Root	530	4180	0.4061670574806671	USDA's Ag Handbook 8 and sequelae)
65	MAGNESIUM	Root	130	4200	0.8718291096104009	
1	MALONIC-ACID	Root	--	--		Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
14	MANGANESE	Root	3	90	0.5288104069776015	

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1	MELILOTIC-ACID	Root	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
1	MERCURY	Root	--	0.016	-0.45460780356449726	ACTA AGRIC SCAND SUPPL 22: 1980
15	METHIONINE	Root	170	1341	0.4540719233816342	USDA's Ag Handbook 8 and sequelae)
2	MOLYBDENUM	Root	--	0.1	-0.46089530570591497	ACTA AGRIC SCAND SUPPL 22: 1980
13	MUFA	Root	270	2219	-0.042210550390970464	USDA's Ag Handbook 8 and sequelae)
0	NEOBETANIN	Plant	--	--		J.S. Glasby Dict.Pls Containing 2ndary Metabolite. 1991.

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	NEOBETANIN	Root	--	20		Alard, d., Wray, V., Grotjahn, L., Reznik, H., Strack, D. 1985. Neobetanin: Isolation and Identification from Beta vulgaris. Phytochemistry, 24(10): 2383-2385.
39	NIACIN	Leaf	4	68	-0.3588352402371107	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
39	NIACIN	Root	2	32	-0.5286048579830713	
3	NICKEL	Root	--	2.5	0.23545089462187527	
0	NITROGEN	Root	2600	35830	0.9726859841750741	ACTA AGRIC SCAND SUPPL 22: 1980
0	OCTACOSAN-1-OL	Root	--	--		Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	OLEANOLIC-ACID-3-O-BETA-D-GLUCOPYRANOSIDE	Root	--	--		
18	OLEIC-ACID	Root	270	2129	0.028613646599413095	USDA's Ag Handbook 8 and sequelae)
5	ORNITHINE	Root	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
9	OXALIC-ACID	Root	3000	15000	-0.40279401570173323	Watt, J.M. and Breyer-Brandwijk, M.G. 1962. The Medicinal and Poisonous Plants of Southern and Eastern Africa. E. & S. Livingstone, Ltd. Edinburg & London. 1457 pp.
0	OXYCITRONIC-ACID	Root	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
25	P-COUMARIC-ACID	Plant	--	--		

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
13	P-HYDROXY-BENZOIC-ACID	Root	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
13	PALMITIC-ACID	Root	210	1656	-0.32320450211702656	USDA's Ag Handbook 8 and sequelae)
11	PANTOTHENIC-ACID	Root	1.5	11.8	-0.822025786396079	USDA's Ag Handbook 8 and sequelae)
0	PENTOSANS	Root	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
7	PHENYLALANINE	Root	420	3312	0.37733807919126017	USDA's Ag Handbook 8 and sequelae)
4	PHOSPHORUS	Leaf	290	5946	0.17930367212570686	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
4	PHOSPHORUS	Root	260	45580	7.390730333501335	
0	PHYTATE	Root	30	370		
2	PHYTOSTEROLS	Root	250	1972	2.6750890076116427	USDA's Ag Handbook 8 and sequelae)
2	PHYTOSTEROLS	Leaf	--	210	-0.7631206262135088	Spiller, G. A. 1996 (Spiller, G. A. Ed. 1996. CRC Handbook of Lipids in Human Nutrition. CRC Press. Boca Raton, FL. 233 pp.)
14	POTASSIUM	Leaf	4380	61798	1.3889349229084433	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
14	POTASSIUM	Root	3033	50000	2.5057949026475304	
0	PRAEBETANINE	Root	--	--		

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	PREBETANIN	Root	--	--		Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
0	PROLINE	Root	380	2997	0.6980948158657292	USDA's Ag Handbook 8 and sequelae)
0	PROTEIN	Root	12850	143000	0.2760979843587698	
0	PROTEIN	Seed	110000	150000	-0.745409416770239	List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	PROTEIN	Leaf	16000	270000	0.5801518232133148	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses

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0	PROTOPORPHYRIN	Root	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
4	PUFA	Root	500	3943	-0.48476339853379624	USDA's Ag Handbook 8 and sequelae)
176	QUERCETIN	Plant	--	--		
0	QUERCETIN-GLUCOSIDE	Leaf	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
1	QUINIC-ACID	Leaf	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
1	RAFFINOSE	Root	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	RAPHANOL	Seed	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	RAPHANOL	Plant	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	RAPHANOL	Root	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
15	RIBOFLAVIN	Leaf	1.7	26	-0.05598689717877004	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
15	RIBOFLAVIN	Root	0.2	3.9	-0.0381979129798729	
0	RUBIDIUM	Root	0.76	32	2.5964404656512277	ACTA AGRIC SCAND SUPPL 22: 1980
7	SALICYLATES	Root	2	15	-0.6489446664726789	
34	SALICYLIC-ACID	Root	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
5	SAPONINS	Root	--	58000	0.10991363498738571	Spiller, G. A. 1996 (Spiller, G. A. Ed. 1996. CRC Handbook of Lipids in Human Nutrition. CRC Press. Boca Raton, FL. 233 pp.)
0	SEDOHEPTULOSE	Leaf	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
60	SELENIUM	Root	--	0.002	-0.3623106990048751	ACTA AGRIC SCAND SUPPL 22: 1980
1	SERINE	Root	540	4259	0.5044937361249509	USDA's Ag Handbook 8 and sequelae)
0	SFA	Root	220	1735	-0.4567016981643995	USDA's Ag Handbook 8 and sequelae)
4	SILICON	Root	1	83	0.038371684428601074	ACTA AGRIC SCAND SUPPL 22: 1980

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	SKATOLE	Root	--	--		Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
1	SODIUM	Root	590	6705	2.60917608632812	USDA's Ag Handbook 8 and sequelae)
1	SODIUM	Leaf	1300	16571	2.2958387060549112	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
8	STEARIC-ACID	Root	10	79	-0.6950094104911273	USDA's Ag Handbook 8 and sequelae)
0	STRONTIUM	Root	16	70	-1	
14	SUCROSE	Root	270000	270000	1.482333586643039	List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
14	SULFUR	Root	130	2000	-0.21353007063213605	ACTA AGRIC SCAND SUPPL 22: 1980
6	SYRINGIC-ACID	Root	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
6	TARTARIC-ACID	Root	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
31	THIAMIN	Leaf	0.6	14	1.1869303740705777	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
31	THIAMIN	Root	0.1	2.4	-0.38024650234914276	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
4	THREONINE	Root	440	3470	-0.07145998210477424	USDA's Ag Handbook 8 and sequelae)
4	TIN	Root	0.8	2.8	-1.3911987269995683	
0	TITANIUM	Root	0.5	9.8	-1.0000000000000002	
0	TRICARBALLYL-ACID	Leaf	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
29	TRYPTOPHAN	Root	170	1341	1.6215555191215911	USDA's Ag Handbook 8 and sequelae)
8	TYROSINE	Root	350	2760	1.213042723775461	USDA's Ag Handbook 8 and sequelae)
3	VALINE	Root	520	4100	0.016624403740957434	USDA's Ag Handbook 8 and sequelae)

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
24	VANILLIC-ACID	Leaf	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
28	VANILLIN	Root	--	--		
0	VIT-B-6	Root	0.5	3.6	-1.7614273244491558	USDA's Ag Handbook 8 and sequelae)
0	VULGAXANTHIN-I	Plant	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	VULGAXANTHIN-II	Plant	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	WATER	Leaf	864000	926000	0.5905074771129576	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
0	WATER	Root	865000	881340	0.733691163849793	USDA's Ag Handbook 8 and sequelae)
3	XYLOSE	Leaf	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
77	ZINC	Root	3	70	2.0068925301263634	
0	ZIRCONIUM	Plant	--	--		